PSTN (Public Switched Telephone Network)

Description

- The **PSTN** is the traditional global telephone network system that connects landline telephones across the world. It uses a mix of copper wires, fiber optics, switching centers, and satellites to transmit voice signals in Analog and digital forms.
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Key Points

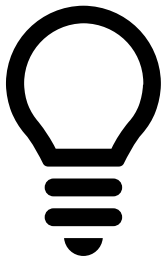
- Based on circuit-switching.
- Supports voice calls, fax, and modem connections.
- Gradually being replaced by VoIP (Voice over Internet Protocol) and mobile networks.

Dial-Up Connection

Description

- A **Dial-Up Connection** is an early method of connecting to the internet using a modem and a telephone line. The modem dials a number provided by an Internet Service Provider (ISP) to establish a connection.
- Dial-up was one of the first ways people accessed the internet. It was slow by modern standards, with maximum speeds of **56 Kbps**, and would occupy the phone line while connected.

Key Points



- Uses PSTN telephone lines.
- Requires a modem and a dial-up number.
- Very slow and outdated compared to modern broadband.

ADSL (Asymmetric Digital Subscriber Line)

Description

- **ADSL** is a type of DSL technology where download speeds are higher than upload speeds, making it ideal for typical home users who download more data than they upload.
- ADSL became popular for home broadband connections because it offered a significant speed boost over dial-up and ISDN, especially for browsing, downloading, and streaming.

Key Points

- Asymmetric speeds (faster download, slower upload).
- Uses existing telephone lines.
- Speed affected by the distance to the telephone exchange.

Summary Table

Feature	PSTN	Dial-Up	ISDN	DSL	ADSL
Full Form	Public Switched Telephone Network	Dial-Up Internet Access	Integrated Services Digital Network	Digital Subscriber Line	Asymmetric Digital Subscriber Line
Type	Analog	Analog	Digital	Digital	Digital
Medium	Copper Lines	Copper Lines	Copper Lines	Copper Lines	Copper Lines
Speed	Voice Only	Up to 56 kbps	Up to 128 kbps	Up to 100 Mbps	Up to 24 Mbps (D) / 1 Mbps (U)
Voice + Data	❌	❌	✅	✅	✅
Always-On	❌	❌	✅	✅	✅
Used For	Voice Calls	Early Internet	Business Internet	Broadband Internet	Streaming/Home Use
Current Use	Some areas	Obsolete	Rare	Yes	Yes
Advantage	Reliable	Simple	Multi-service	Fast	Fast Downloads

ISDN (Integrated Services Digital Network)

Description

- **ISDN** is a set of communication standards that enable the simultaneous transmission of voice, video, and data over digital telephone lines.
- ISDN was introduced to improve the quality and speed of dial-up connections by sending digital signals over ordinary telephone wires, providing faster and more reliable services than analog systems.

Key Points

- Digital alternative to dial-up.
- Supports multiple channels on one line.
- Used for video conferencing and secure data transfers before broadband became popular.

DSL (Digital Subscriber Line)

Description

- **DSL** is a high-speed internet access technology that uses existing telephone lines to transmit digital data without interrupting voice services.
- DSL allows simultaneous use of internet and telephone calls on the same line. It provides much faster speeds than dial-up, making it a widely used broadband technology before fiber-optic internet.

Key Points

- Uses copper telephone lines.
- Always-on connection (no dialing required).
- Speed varies based on distance from the service provider's equipment.

ICT Assignment

ICT Assignment 02

NETWORK CONCEPTS

Unit 06 - Networking

July 14, 2025

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